Work Order August-06-13 10:3			*105	445	*					Page 1
Revision ID:	3121-25 elrin Cap	A	eccept	*N9	በበበ	40100)*	Setup Star Sto	IVI	S1* S2*
Start Date: 8/0 Required Date: 8/0 Reference:	706/13 Start Qty: 100.7 720/13 Req'd Qty: 100.8			Cust Custo	Item ID: mer:					
	Process Plan: MCJ	Date: <u>13-0</u> 8-06 Date:	Tooling: SPC (Y/N):		Date:	· 7	F	Run Stai Sto	D	R1* R2*
Sequence ID/ Work Center ID	Operation Description		Set Up/ Run Hours	Tool	ID T	ool # Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr			1						
D3121	Rev E								· <u></u>	
*100 *100* Hardinge Hardinge CNC Lathe Sr	Hardinge CNC LATH Memo mall 1-Turn Di	E SMALL 3121-25 Cap as per Folio FA387	0.00 AS 0.00 40 72-Deburr 9-8	13/08	 \$ /66 		100	_ Ø	- -	· · ·
110	QC2- Inspect parts off	machine FAI/FAIB	0.00		٠			•		
110 QC Quality Control	Memo		0.00 (PAQ	13/0	8/06		_(00	Ø		**
*120	QC8- Inspect parts - so	econd check	0.00	P 13	.8.7	,	102	-4		
QC Quality Control	Memo		0.00		*		102	- 		

•

											DQA:	Date:	
NCR: Y	res /	No				WORK ORDER NON-C	10:	VFORM	MANCE / UPDAT		OA SLOVA	D-1	
						· · · · · · · · · · · · · · · · · · ·					QA Closed:	Date:	
Work Orde	. ·					DISPOSITION	ļ	AGAINST DEPARTMENT/PROCESS					
WORK OTHE	E1. —	.				Rework	Skid-tube Crosstube				Water Jet	Engineering	
Part N	No.					Scrap	1	Machining Small Fab			Pro	d. Eng. Coor.	Quality
	···-					Use-as-is Thermoforming			- <u>-</u>	inishing	Rec/Stor	e/Packaging	Other
NCR N	No.					Work Order Update]		Large Fab Cor	mposite 🔲		Supplier	
													,
Root					I	ption of work order update	1	nitial	Action		Sign &	_	
Cause)ate	Step	Qty	,	or Non-conformance	Ch	ief Eng	Description	n	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling							ŀ						
Operator	Ш						l						
Material	Ш	l					•						
Setup	Ш												
Other	Ш	1											
Process													
Supplier	Ш												
Training	Ш						}						
Unapproved				<u> </u>	,		<u> </u>					_	<u></u>
							AUL	T CATE	GORY				
Landi	ng Gea				_	General	_	1			1	_	1
	\blacksquare	nding			 _	Bend		Grain		<u> </u>	Ovalized		Pressure/Forced
	\vdash		t Concer	ntric to	O/S	BOM/Route	_	Hardwa		—	Over/Under		Temperature/Cure
	Cracks Broken/Damaged			⊣ ' ~	-	ł	on Incomplete	-	Part Incorred	-	Weld		
	-		Crimped			Burrs	<u>_</u>	4	ions Incomplete/Unclea		Part Lost/Mi	ssing	Wrong Stock Pulled
	Cuffs				L	Contamination	\perp	Mainte	nance	\vdash	Part Moved		
1	├					Countersink		Mislabe	led	i i	Positioned V	√rong	

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Ord		5445		*10!	5445*				Page 2	
Item ID: Revision ID: Item Name:	D3121-25 Delrin Cap			Accept	* N900	040	100*	Setup S	tart *NS1* top *NS2*	
Start Date: Required Date: Reference:	8/06/13 8/20/13	Start Qty: 100.00 Req'd Qty: 100.00	*100* *100*		· Cust Item II Customer:	D:				
Approvals:	Process Pla	n:	Date:	Tooling:	: Da	te:			tart *NR1*	
	QC:	<u>-</u>	Date:	SPC (Y/N):	Da	te:		J	**************************************	
Sequence ID/ Work Center II	D	Operation Description Identify as per dwg & Stoc	k Location: <u>572</u> 35	Set Up/ Run Hours	Tool ID	Tool #	Plan Acce Code Qty	Qty	Number Stamp	
130 Packaging Packaging		Memo		0.00			<u>/02</u>	Zx. i	M. D. 13-08-	7
140 *140*		QC21- Final Inspection - V	Vork Order Release	0.00			4.4	nc5	12-2-13	
QC Quality Control		Memo		0.00			<u></u>	, A	13-08-13 165 13-08-12	

DQA:	Date:	

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

	,						-	,	<u></u>	QA Closed:	Date	e:	
Work Orde	·r·				DISPOSITION		AGAINST DEPARTMENT/PROCESS						
Part N					Rework Scrap]		Skid-tube Machining	Crosstube Small Fab		Water Jet d. Eng. Coor.	Engineering Quality	
NCR N	lo				Use-as-is Work Order Update	}			Finishing Composite	Rec/Stoi	re/Packaging Supplier	Other	
Root				Descri	ption of work order update	In	itial	Ac	tion	Sign &			
Cause	Date	Step	Qty	(or Non-conformance	Chi	ef Eng	Desc	ription	Date	Verification	QC Inspector	
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training													
Unapproved		<u>l</u>	1 . 1		F.	ΔΙΙΙΤ	CATE	GORY		1			
Landir	ng Gear				General								
	Landing Gear Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs			Bend BOM/Route Broken/Damaged Burrs Contamination		Grain Hardware Inspection Incomplete Instructions Incomplete/Unclear Maintenance			Ovalized Over/Under Part Incorred Part Lost/Mi Part Moved	ct ssing	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled		
	Heat Trea		Tuba	<u> </u>	Countersink	\mapsto	Mislabe		-	Positioned V Power Loss/	· · ·	Other	
}	Inspectio Ripples in	•	rupe	<u> </u>	Cut Too Short Drill Holes	-	Misread Offset	ı		rower coss/:	oniĝe [Torner	
ŀ	Torque V		Extrusion	, 	Drawing	\vdash		Calibration				<u> </u>	
ŀ				·	Finish	\mathbf{H}		Sequence					
ŀ	_	Turning Sequence Wave/Twist in Tube			Folio	-		Dimensions		<u>-</u>			

Licklist Print

August-06-13 10:36:45 AM

Work Order ID: 105445

105445

Parent Item:

D3121-25

D3121-25

Parent Item Name: Delrin Cap

Start Date: 8/06/13 Start Qty: 100.00

Required Date: 8/20/13

Required Qty: 100.00

Comments:

IPP Rev:A New Issue 06-05-10 JLM

IPP Rev:B ECN 1060 07-11-12 DD verified by:EC

Replacement Mfg/ Component Item ID/ Bin Primary Last Route] Unit of Qty on Qty per Kit Total Qty Date Status Item Name Item ID Purch Item Location Location Seq ID Measure Hand Issued Issued Qty. MDELRINR1,2500 No .Purchased 100 0.0000 0.052 5.473684 **

M 125251

5.5

MOELRIN R1.000

The Butch for 1808.07

												DQA:	Da	ate:	
NCR:	⁄es	/ No				WORK ORDER NON-	coi	NFORM	JANCE / UP	DATE					
		•							-			QA Closed:	Da	ate:	
Marile Ond						DISPOSITION			AGAINST DEPARTMENT/PROCESS						
Work Orde	.			• • •		Rework	Rework Skid-tube Crosstu			Crosstube		1	Water Jei	t	Engineering
Part I	No.					Scrap	1	1	Machining	Small Fab		Pro	d. Eng. Coor	_	Quality
				Use-as-is	1	Thermoforming Finishing				4	re/Packaging	_	Other		
NCR No.			Work Order Update		Large Fab Composite]	Supplie	r_				
															
Root			İ			iption of work order update		Initial		tion		Sign &			
Cause		Date	Step	Qty		or Non-conformance	Ct	nief Eng	Desc	ription		Date	Verification	<u>nc</u>	QC Inspector
Doc/Data	Щ														
Equip/Tooling															
Operator							İ								
Material															
Setup															
Other							1								
Process															
Supplier					}										
Training															
Unapproved							1		`			<u> </u>			
							AUI	LT CATE	GORY						
Landi	ng (Gear				General		_		_		-		_	
	Ĺ_	Bending				Bend		Grain				Ovalized		L	Pressure/Forced
		Centre N	ot Conce	ntric to	o/s	BOM/Route		Hardwa	re			Over/Under	tolerance	L	Temperature/Cure
		Cracks				Broken/Damaged	L	Inspecti	on Incomplete			Part Incorre	ct	L	Weld
		Crushed/	Crimped		Γ	Burrs		Instruct	ions Incomplete/	/Unclear		Part Lost/Mi	ssing	L	Wrong Stock Pulled
i	Cuffs			Contamination		Mainte	nance	Γ		Part Moved					

Mislabeled

Misread

Offset -

Out of Calibration

Out of Sequence

Outside Dimensions

Positioned Wrong

Power Loss/Surge

Other

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Countersink

Cut Too Short

Drill Holes

Drawing

Finish Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order: 105445	
Description: Cap	Part Number: D3121-	25
Inspection Dwg: D3121 Rev: E	Page 1	of 1

FIRST ARTICLE INSPECTION CHECKLIST

X First Article Prototype

			سعما			
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.315	+/-0.010	-315			VEON	P40-12
Ø1.000	+/-0.010	.996			gL	1-
Ø0.838	+/-0.002	- \$38	1		r	4
R0.063	+/-0.010	. 060	/		Rado	
R0.010	+/-0.010	.010	1		, .	
0.230	+/-0.001	-230			VERN "	Q40-12
Ø0.865	+/-0.001	.865			4	11
		-				
						,
						<u> </u>
					-	
					<u> </u>	
				11.3.		
					<u></u>	
		·		<u></u>		

Measured by: 40 Audited by: Prototype Approval: N/A

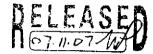
Date: 13/08/06 Date: 15.6.7 Date: N/A

Rev	Date	Change	Revised by	Approved
Α	04.04.20	New Issue (P/O D3121-241)	KJ/RF	
В	06.06.09	Ø1.000 diameter was Ø1.024	KJ/JLM ,	
С	08.01.16	Dwg Rev. updated	KJ/EC/DD	

	•	



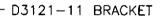
	DESIG	#	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
j	CHECK	KED €	APPROVED	DRAWING NO. REV. E
	L	91	THE THE	D3121 SHEET 1 OF 10
	DATE		-	TITLE SCALE
	07.1	11.07	 	BRACKET ASSEMBLY 1:2
	Α		02.04.15	NEW ISSUE
	В		03.01.16	ADD RIDGES; ADD MAT'L PROP; FIX P/N ADD -141/-143/-144/-145/-146
	С		04.02.17	ADD CLEARANCE; USE -241 BEARING
	D		06.05.17	D3121-25 CAP WAS 1.024, NOW 1.000
	E	ĺ	07.11.07	ADD TOLERANCE TO 0.032 (DETAIL B)

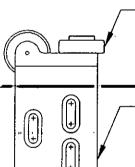


D3121-21 BOLT (1) D3121-241 BEARING ASSEMBLY (1)

D3121-041 BRACKET ASSEMBLY

(REPLACES PREMIER P/N B30-23000-33)





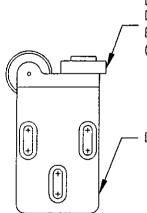
 \bigoplus

D3121-21 BOLT (1) D3121-241 BEARING ASSEMBLY (1) (2 PLACES)

D3121-043 (SHOWN) / D3121-044 (OPPOSITE) BRACKET ASSEMBLY

(REPLACES PREMIER P/N B30-23000-37/-38)

D3121-13/-14 **BRACKET**



D3121-21 BOLT (1) D3121-241 BEARING ASSEMBLY (1) (2 PLACES)

D3121-045 (SHOWN) / D3121-046 (OPPOSITE) BRACKET ASSEMBLY

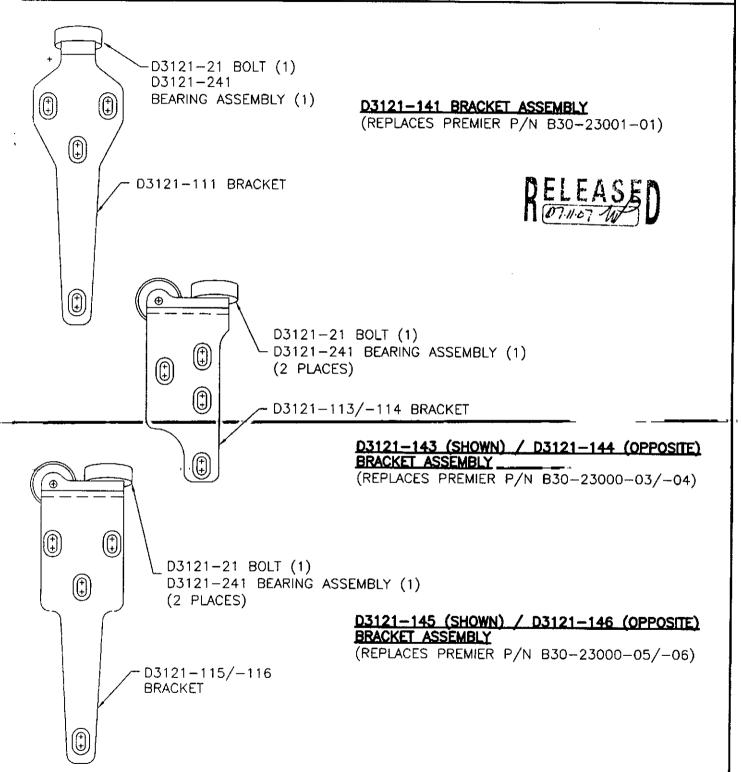
(REPLACES PREMIER P/N B30-23000-35/-36)

D3121-15/-16 BRACKET

Copyright © 2002 by DART AEROSPACE LTD



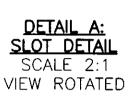
DESIGN	DRAWN BY	DART AEROSP HAWKESBURY, ONTARI	
CHECKED	APPROVED	DRAWING NO.	REV. E
91		D3121	SHEET 2 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2

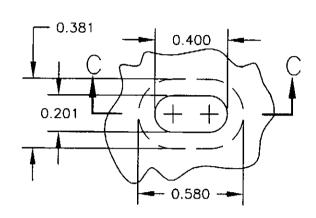


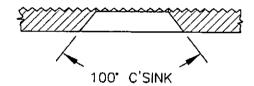
<i>.</i>		



DESIGN	DRAWN BY		OSPACE LTD ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO.	REV. E
1 44	-#	D3121	SHEET 3 OF 10
DATE		TILE	SCALE
07.11.07		BRACKET ASSEMBLY	1:1



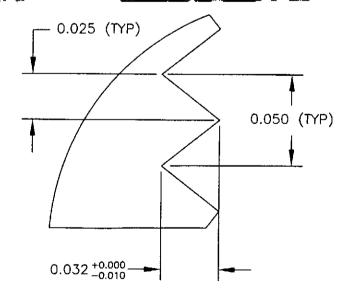




SECTION

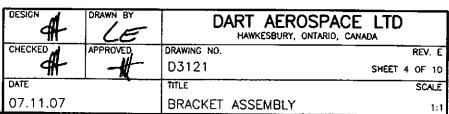


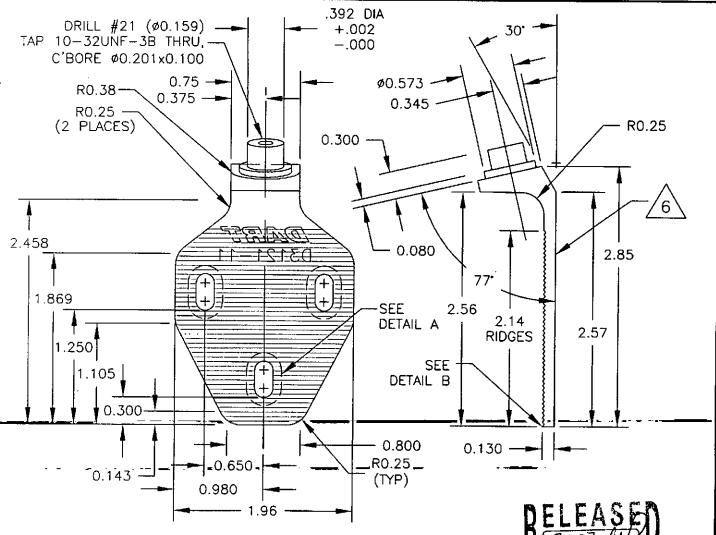
DETAIL B: RIDGE DETAIL PARTIAL SECTION SCALE 1:20



			-
• •			







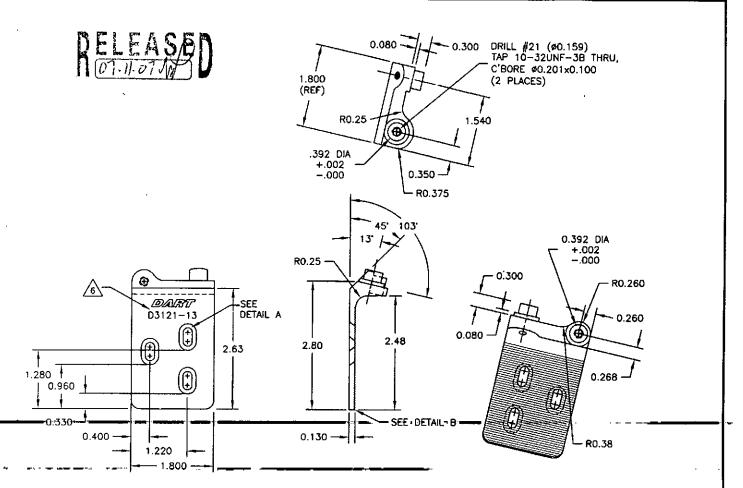
D3121-11 BRACKET

- 1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B) MIN ULTIMATE TENSILE = 150 ksi MIN YIELD TENSILE = 100 ksi
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N & LOGO AS SHOWN
- 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

	•			
		•		
	,			
• •				



DESIGN 4	DRAWN BY	DART AEROSP HAWKESBURY, ONTARI	
CHECKED	APPROVED	DRAWING NO.	rev. e
4#		D3121	SHEET 5 OF 10
DATE	·	TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



D3121-13 BRACKET (SHOWN) D3121-14 BRACKET (OPPOSITE)

- i) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
 MIN ULTIMATE TENSILE STRENGTH = 150 ksi
 MIN YIELD TENSILE STRENGTH = 100 ksi
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N & LOGO AS SHOWN
- 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

Copyright @ 2002 by DART AEROSPACE LTD

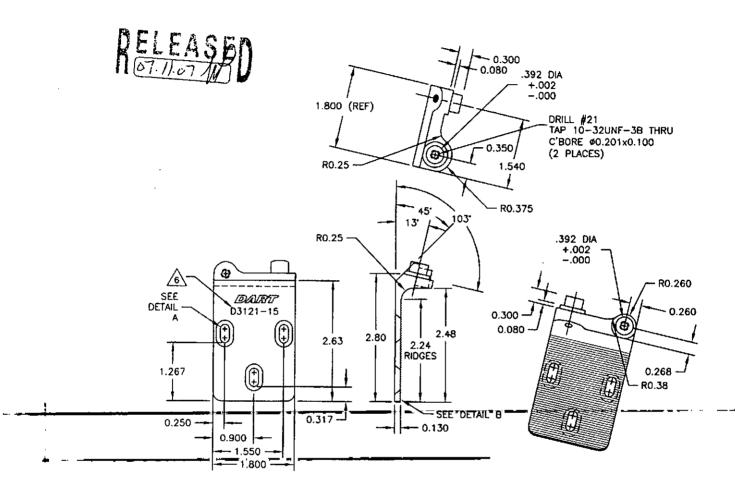
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

144501

	·		
	•		
	•		
. 1			



DESIGN #	DRAWN BY		OSPACE LTD ONTARIO, CANADA
CHECKED	APPROVED	D3121	REV. E SHEET 6 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



D3121-15 BRACKET (SHOWN) D3121-16 BRACKET (OPPOSITE)

- 1) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
 MIN ULTIMATE TENSILE = 150 ksi
 MIN YIELD TENSILE = 100 ksi
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N AND LOGO AS SHOWN
- 6) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

Copyright © 2002 by DART AEROSPACE LTD

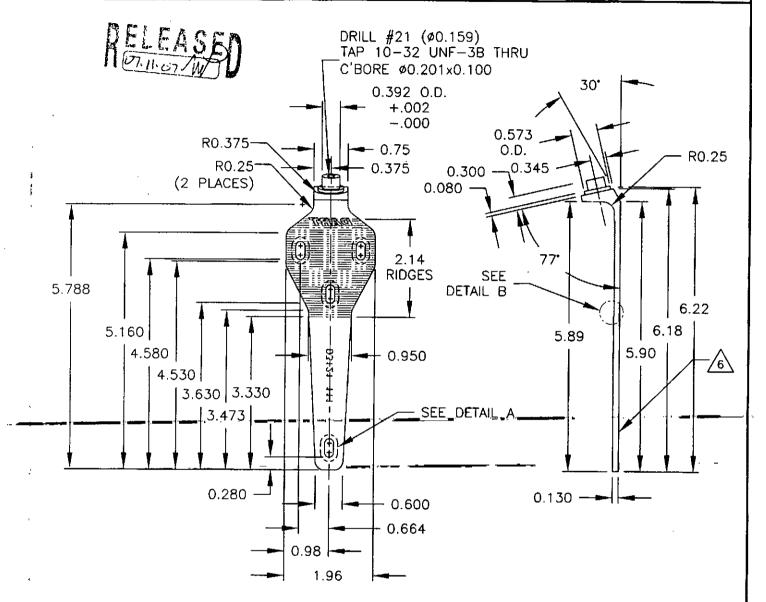
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

105415

, 0



DESIGN	DRAWN BY	DART AEROSP HAWKESBURY, ONTARI	
CHECKED	APPROVED	DRAWING NO.	REV. E
#		D3121	SHEET 7 OF 10
DATE		TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	1:2



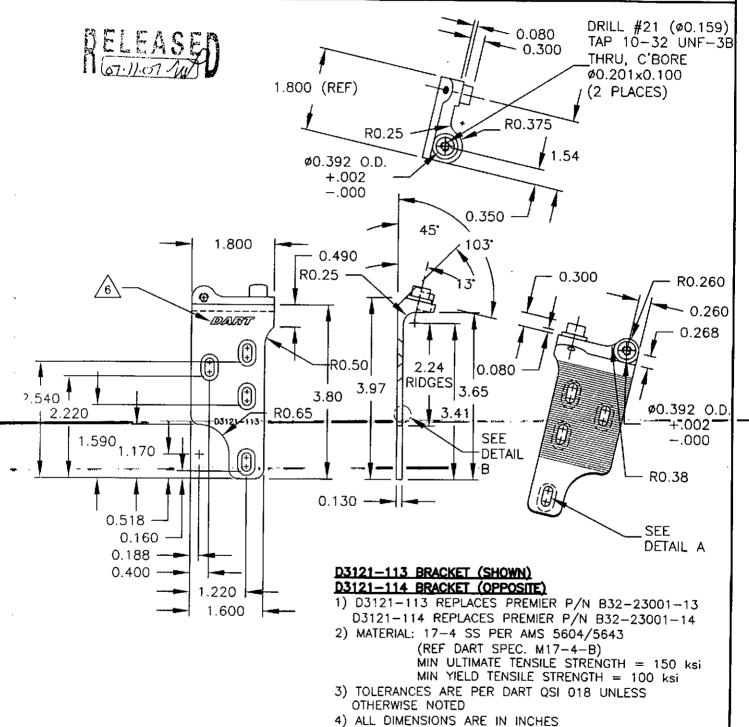
D3121-111 BRACKET

- 1) REPLACES PREMIER P/N B32-23001-11
- 2) MATERIAL: 17-4 SS PER AMS 5604/5643 (REF DART SPEC. M17-4-B)
 MIN ULTIMATE TENSILE = 150 ksi
 MIN YIELD TENSILE = 100 ksi
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHEWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 5) ENGRAVE DART P/N & LOGO IN AREAS SHOWN
- 7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

Copyright © 2002 by DART AEROSPACE LTD



DESIGN #	DRAWN BY	DART AEROSP. HAWKESBURY, ONTARI	
CHECKED	APPROVED	DRAWING NO.	REV. E SHEET 8 OF 10
DATE	-	TITLE	SCALE
07.11.07		BRACKET ASSEMBLY	f;2



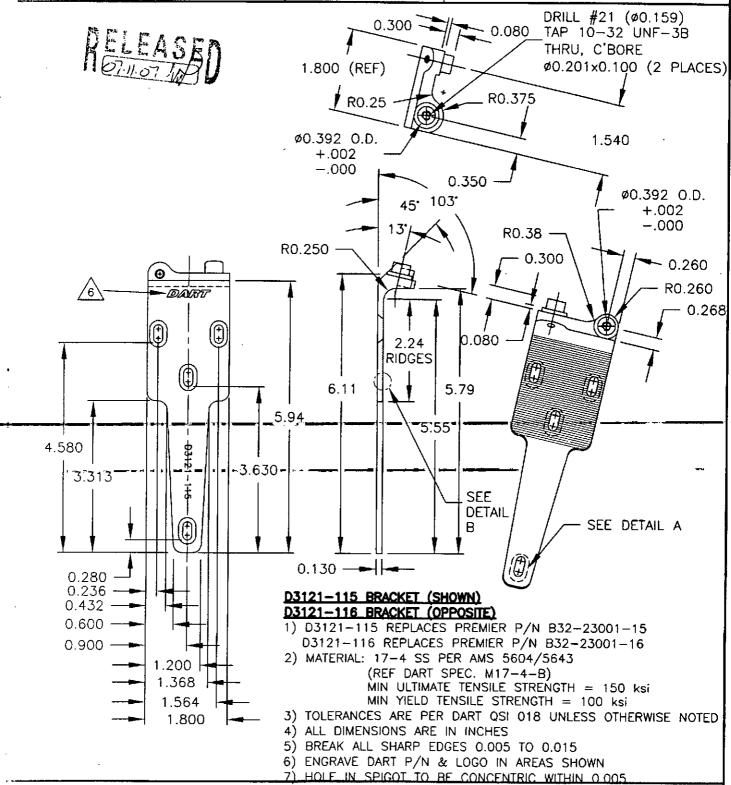
Copyright © 2002 by DART AEROSPACE LTD

5) BREAK ALL SHARP EDGES 0.005 TO 0.015 6) ENGRAVE DART P/N & LOGO IN AREAS SHOWN 7) HOLE IN SPIGOT TO BE CONCENTRIC WITHIN 0.005

		:		 ·
		•		
	•			
	1			
				•
6 g \$				



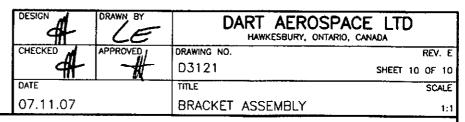
DESIGN A DRAWN BY		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
CHECKED	APPROVED.	D3121	REV. E SHEET 9 OF 10		
DATE		TITLE	SCALE		
07.11.07		BRACKET ASSEMBLY	1:2		

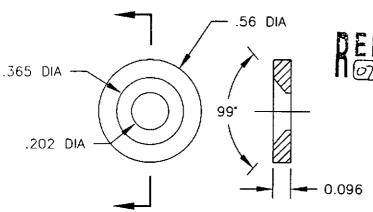


Copyright © 2002 by DART AEROSPACE LTD

		<i>:</i>	
			,
	·		
	•		
		•	•
• • •	•		

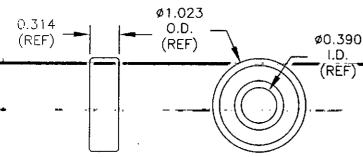






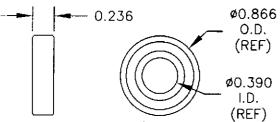
D3121-17 WASHER (SCALE 2:1)

- 1) REPLACES PREMIER P/N B32-23001-17
- 2) MATERIAL: AISI 303 SS ROUND BAR, ANNEALED (REF DART SPEC. M303R)
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES5) BREAK ALL SHARP EDGES 0.005 TO 0.015



D3121-19 BEARING (SCALE 1:1)

- 1) POSSIBLE SUPPLIER: KING BEARING P/N 6000-2ZJ/EM FAFNIR P/N 9100KDD
- . 2) ALL DIMENSIONS ARE IN INCHES



D3121-23 BEARING (SCALE 1:1)

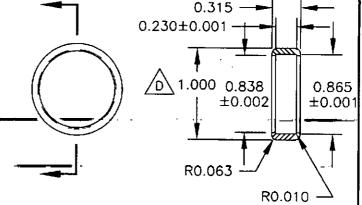
1) POSSIBLE SUPPLIER: SKF P/N 61900-2Z OR KML P/N 6900-ZZ

2) ALL DIMENSIONS ARE IN INCHES

0.375 TAP 10-32 UNF-3A 0.080 0.050 TO 0.060

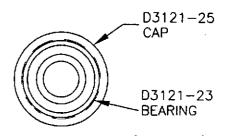
D3121-21 BOLT (SCALE 1:1)

- 1) MATERIAL: AISI 303 SS HEX, ANNEALED (REF DART SPEC. M303H0.500)
- 2) FINISH: NONE
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) BREAK ALL SHARP EDGES 0.005 TO 0.015



D3121-25 CAP (SCALE 1:1)

- 1) MATERIAL: DELRIN ROD, Ø1.25
 (REF DART SPEC. M-DELRIN-R1.250)
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES



D3121-241 BEARING ASSEBLY (SCALE 1:1)

Copyright © 2002 by DART AEROSPACE LTD

•	8	